

Fig. 1 Natural Gas Pipeline Schematic

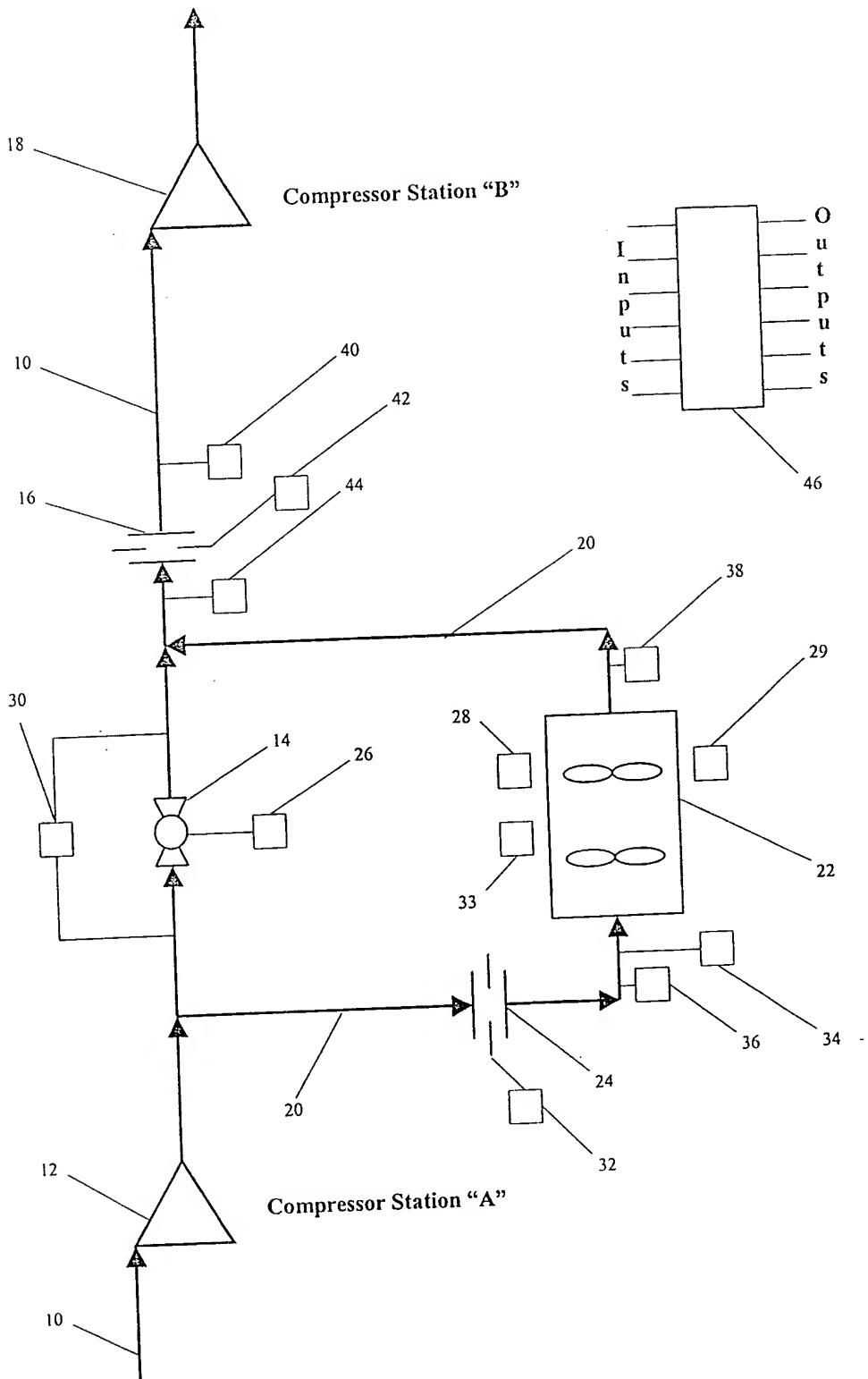


Fig. 2A Steps involved in Deriving the Control Algorithm – Part A

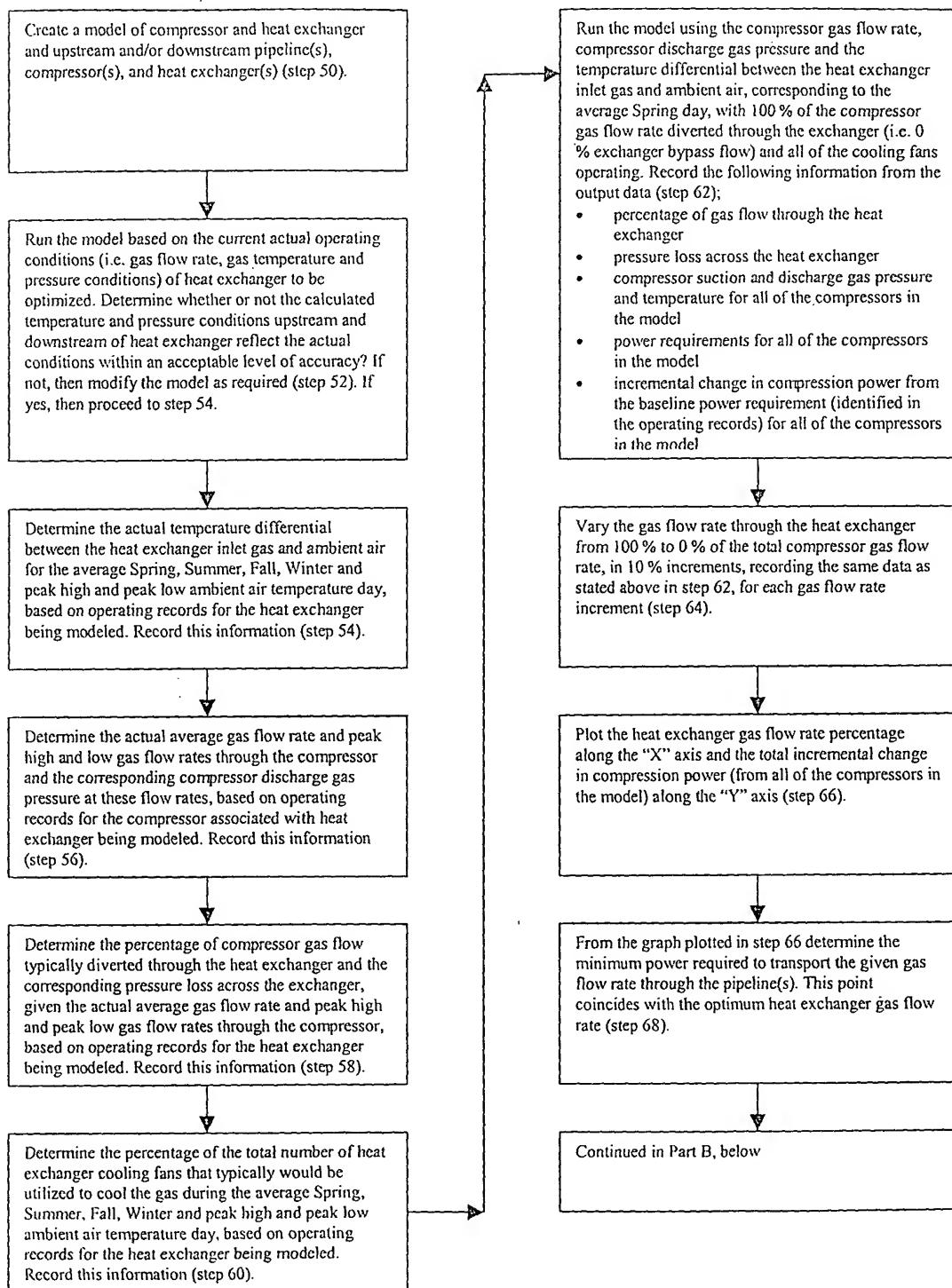


Fig. 2B Steps involved in Deriving the Control Algorithm – Part B

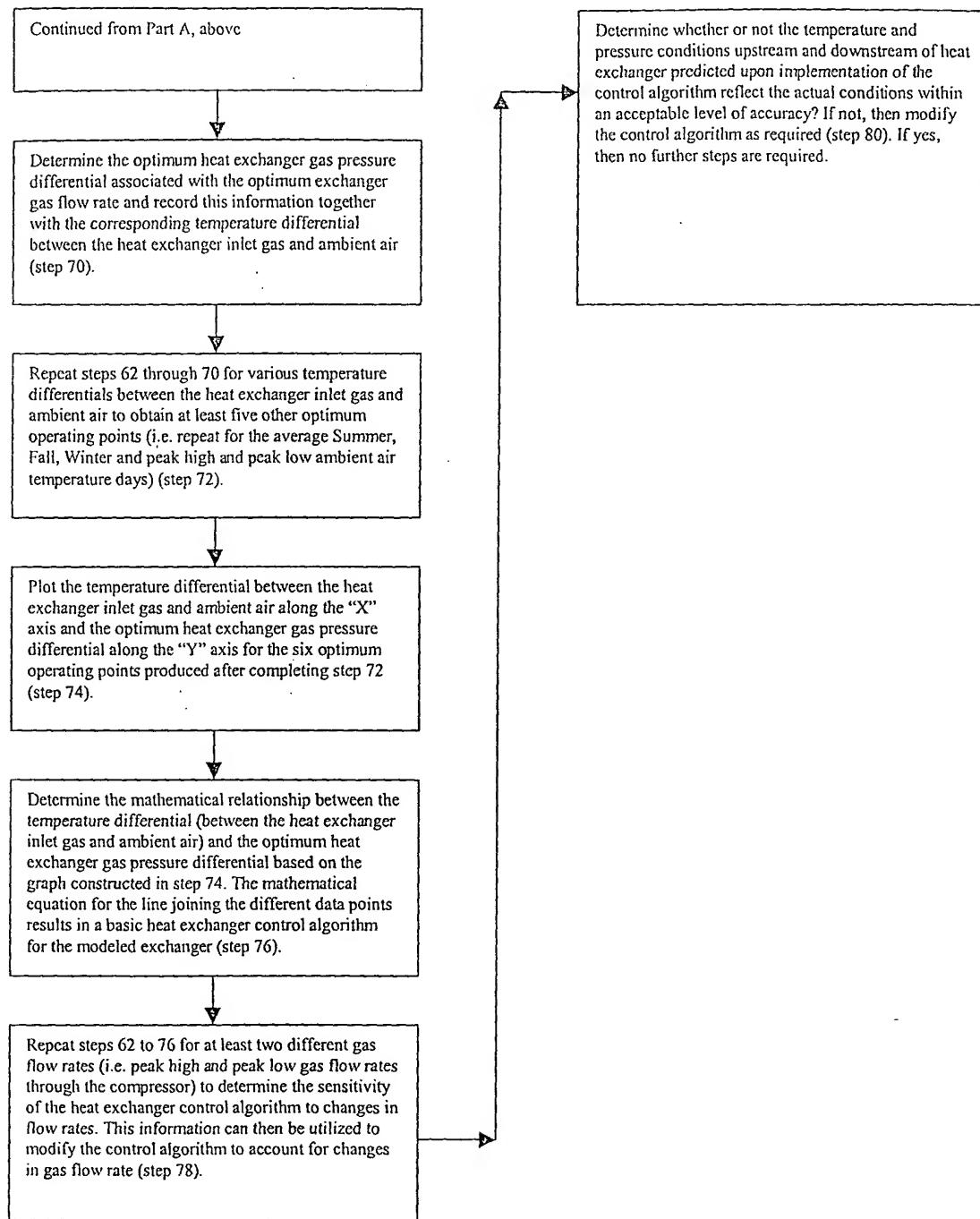


Fig. 3 Heat Exchanger Management Device Schematic – Embodiment One

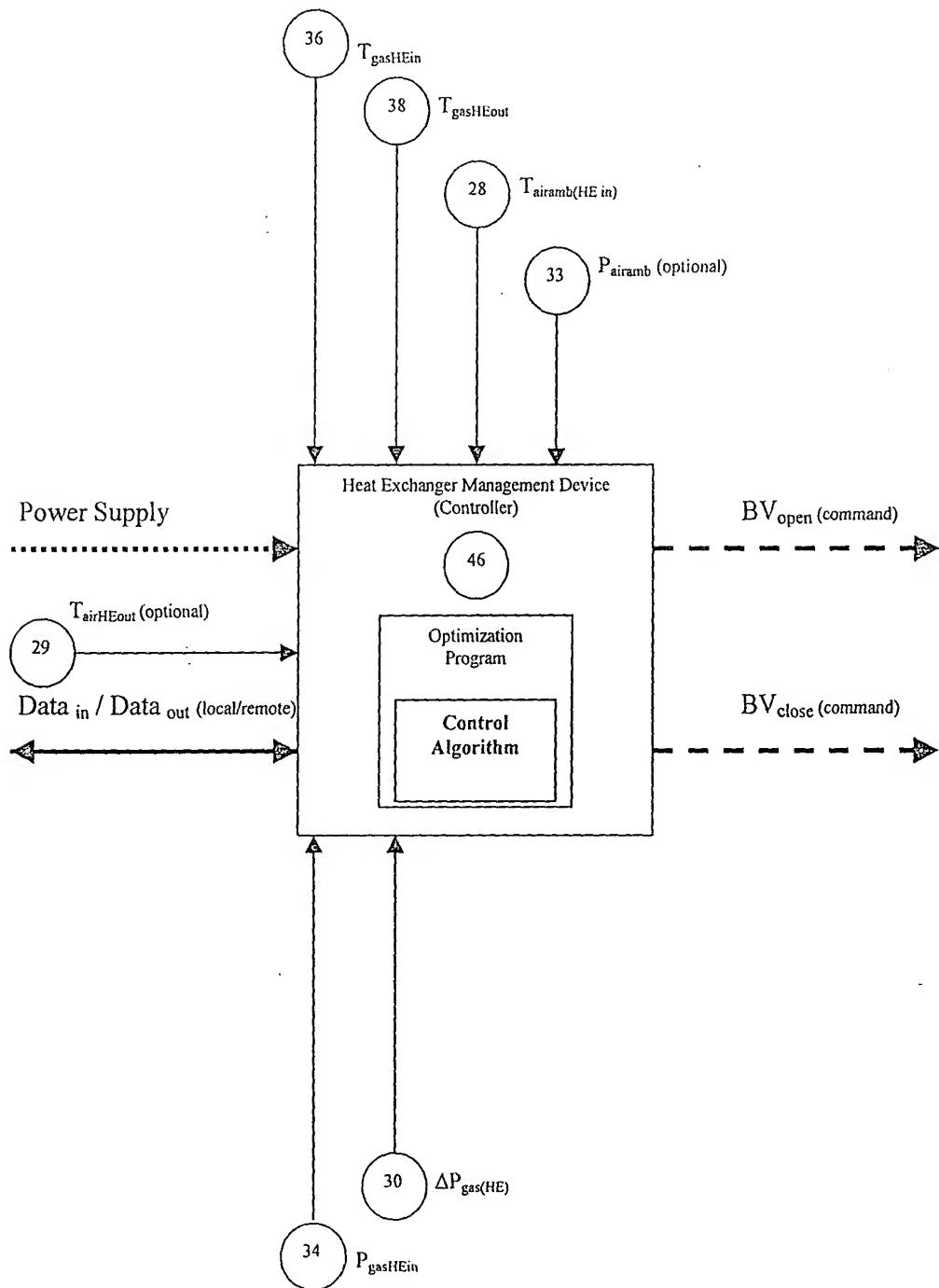


Fig. 4 Heat Exchanger Management Device Schematic – Embodiment Two

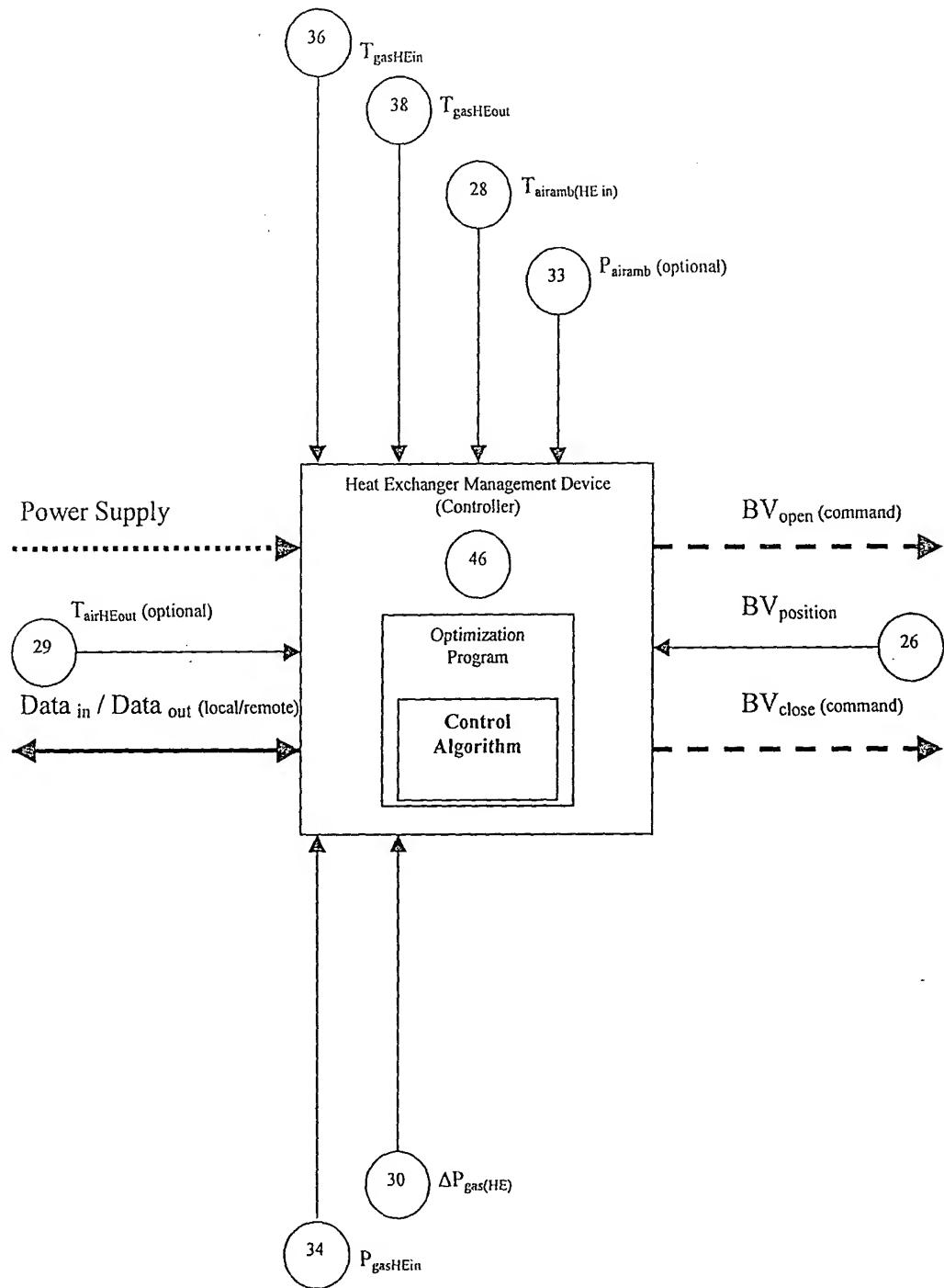


Fig. 5 Heat Exchanger Management Device Schematic – Embodiment Three

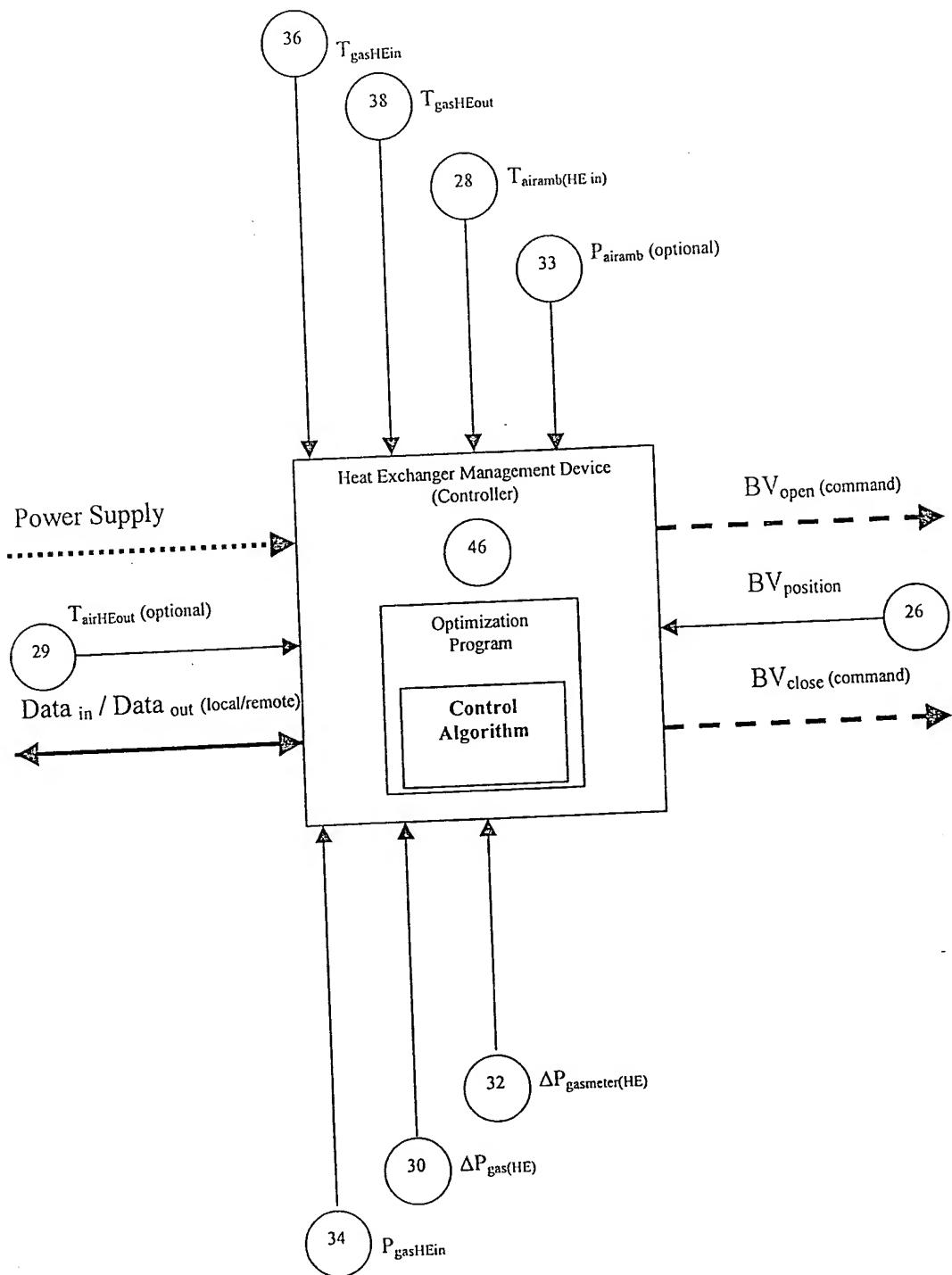


Fig. 6 Heat Exchanger Management Device Schematic – Embodiment Four

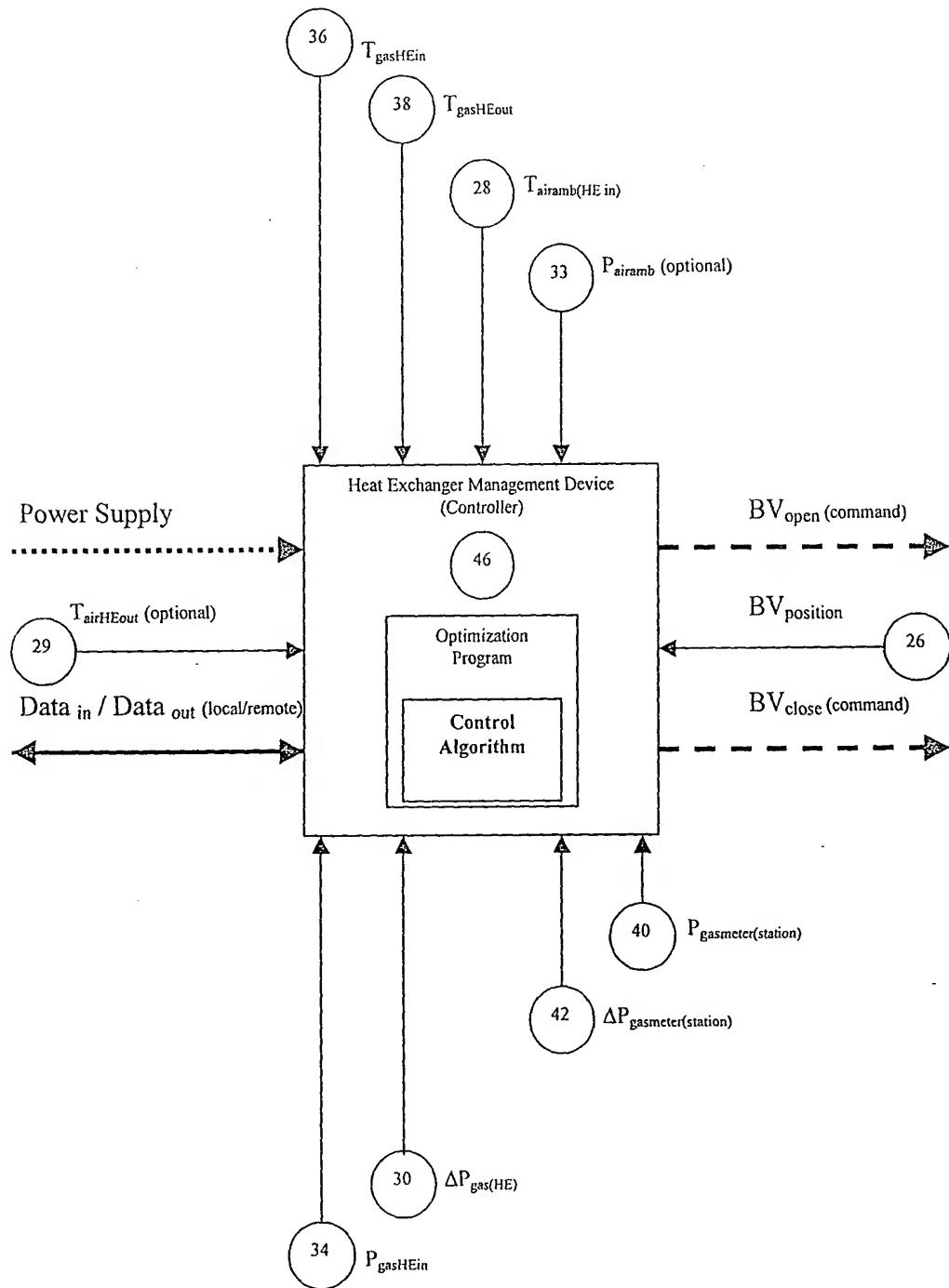


Fig. 7 Heat Exchanger Management Device Schematic – Embodiment Five

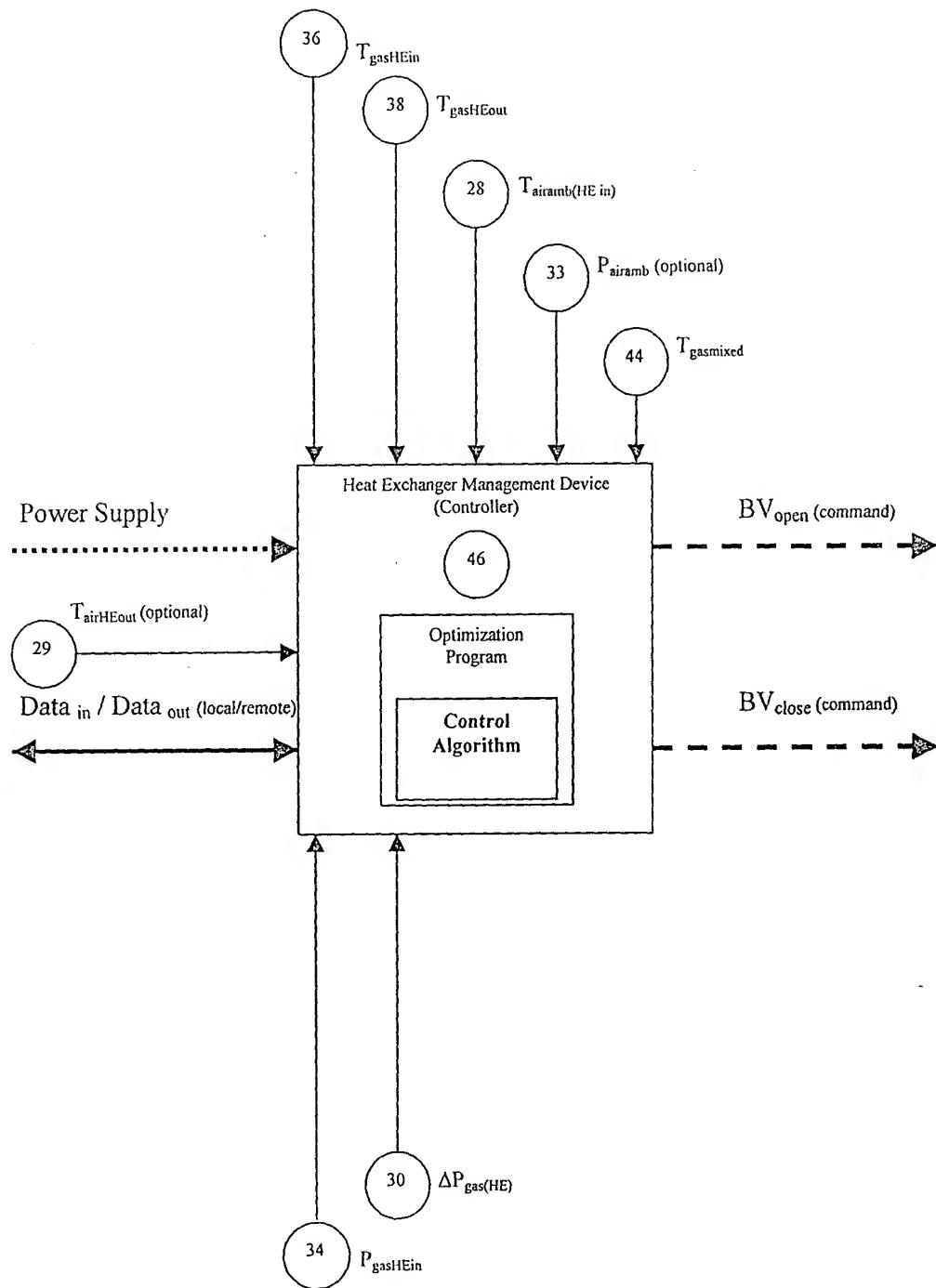


Fig. 8 Heat Exchanger Management Device Schematic – Embodiment Six

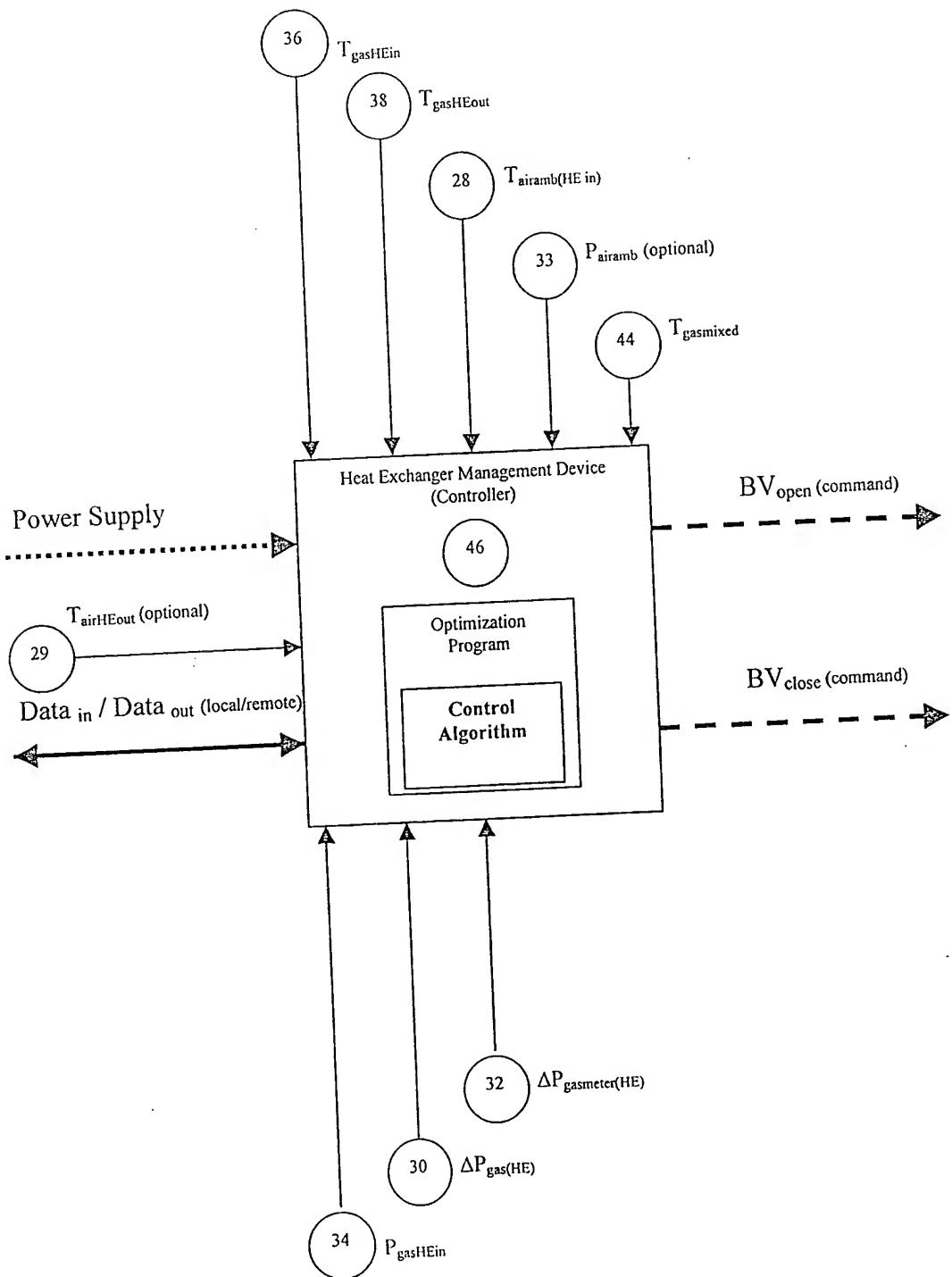


Fig. 9 Heat Exchanger Management Device Schematic – Embodiment Seven

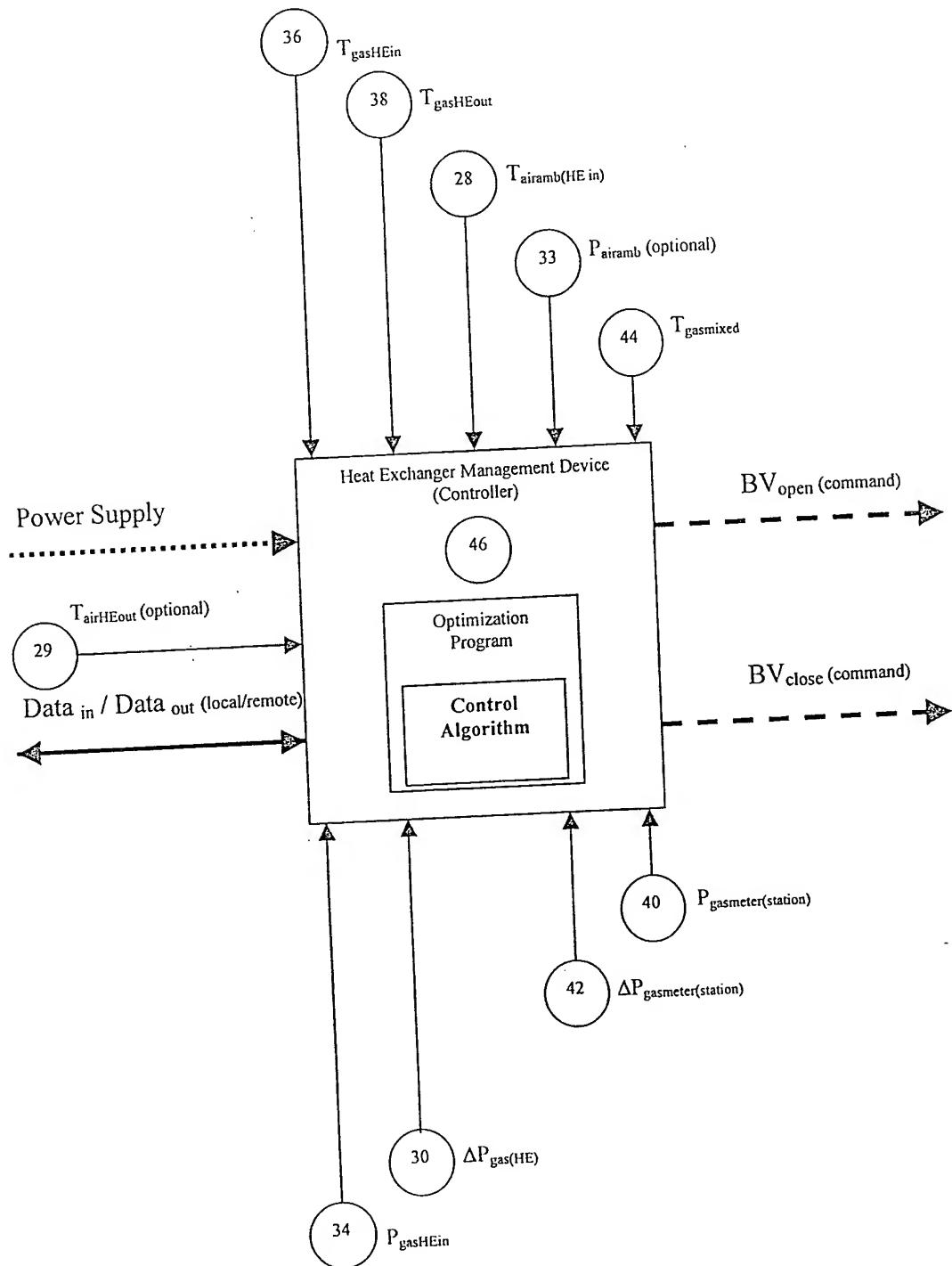


Fig. 10 Heat Exchanger Management Device Schematic – Embodiment Eight

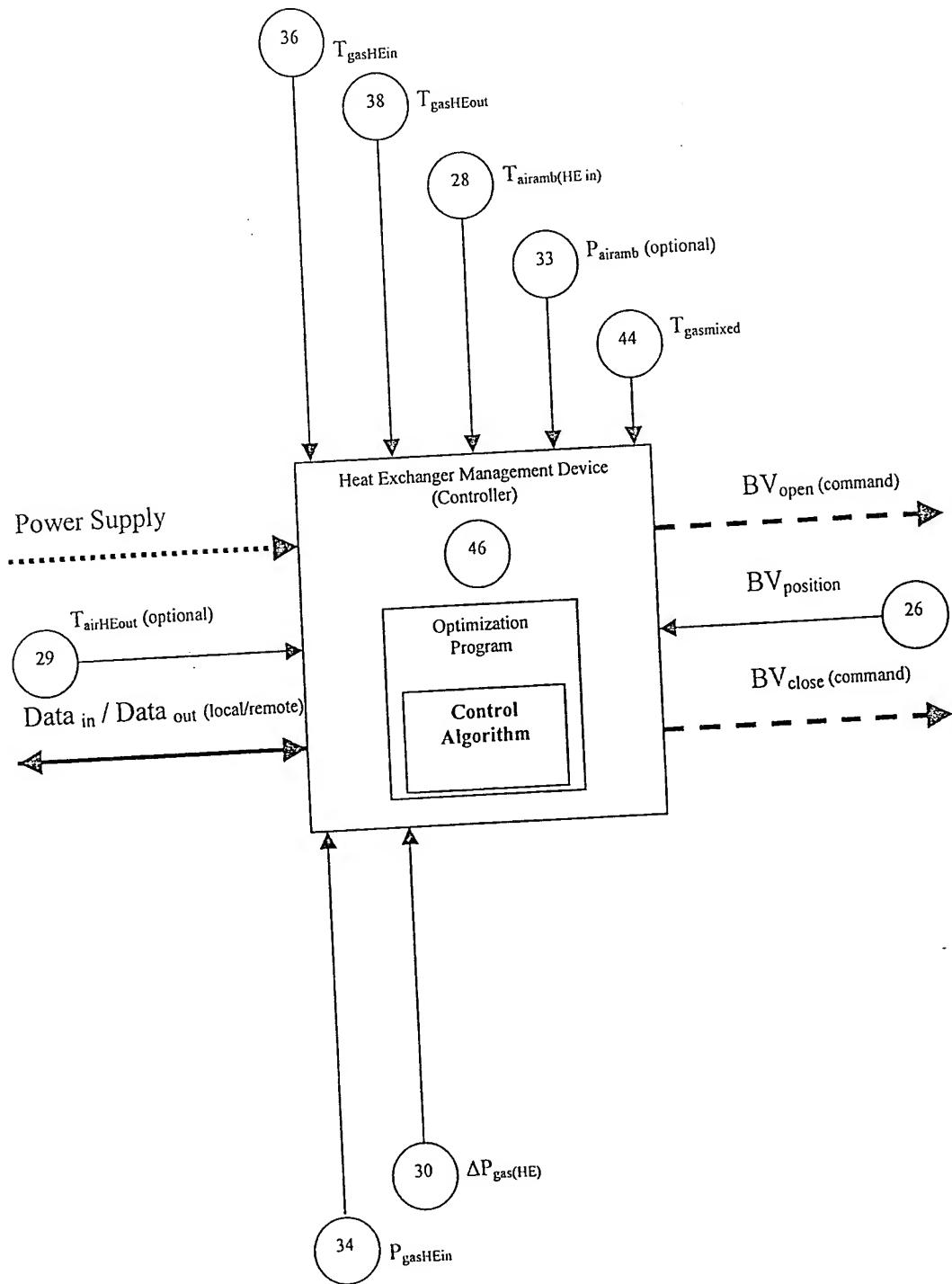


Fig. 11 Heat Exchanger Management Device Schematic – Embodiment Nine

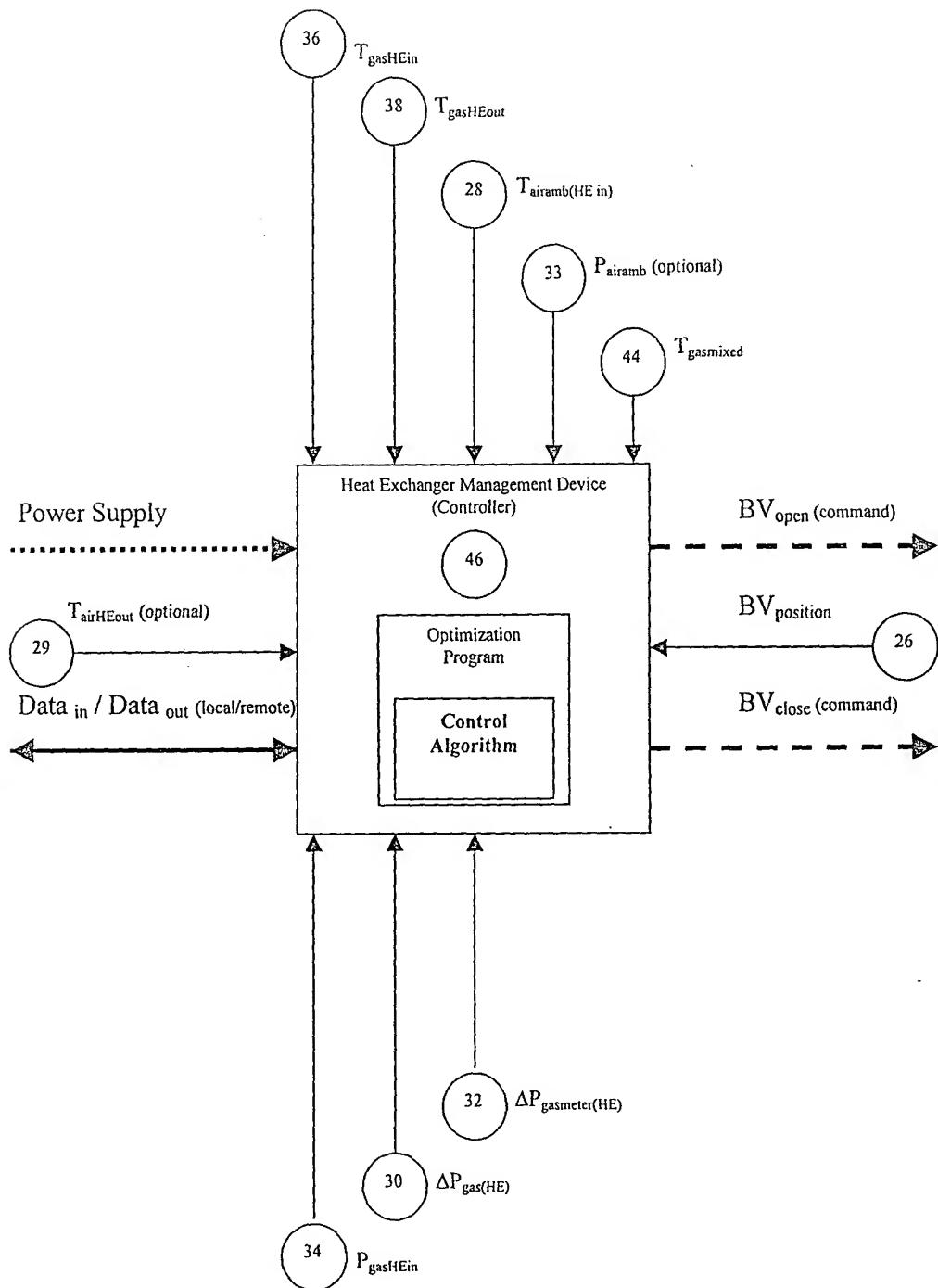


Fig. 12 Heat Exchanger Management Device Schematic – Embodiment Ten

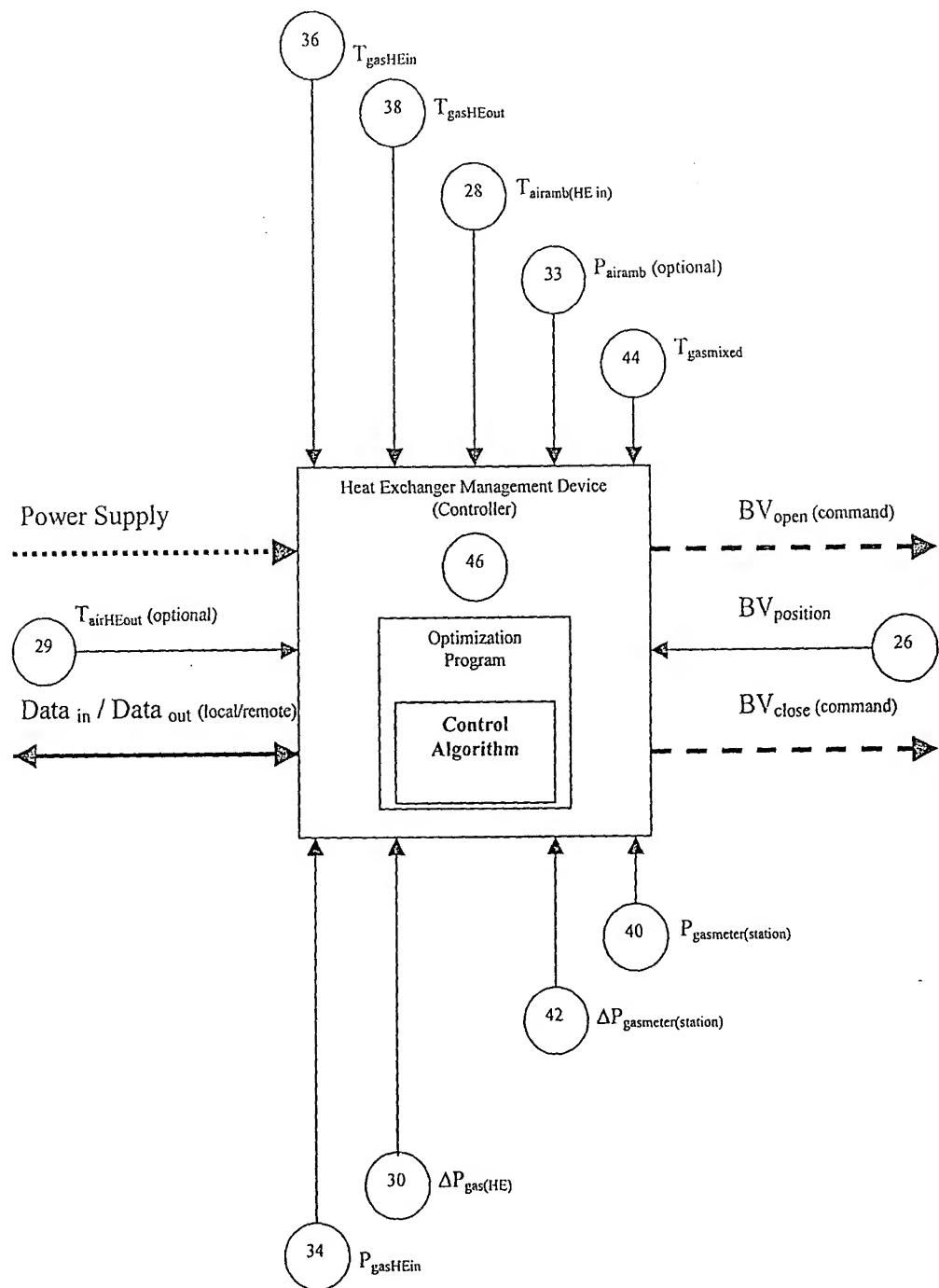
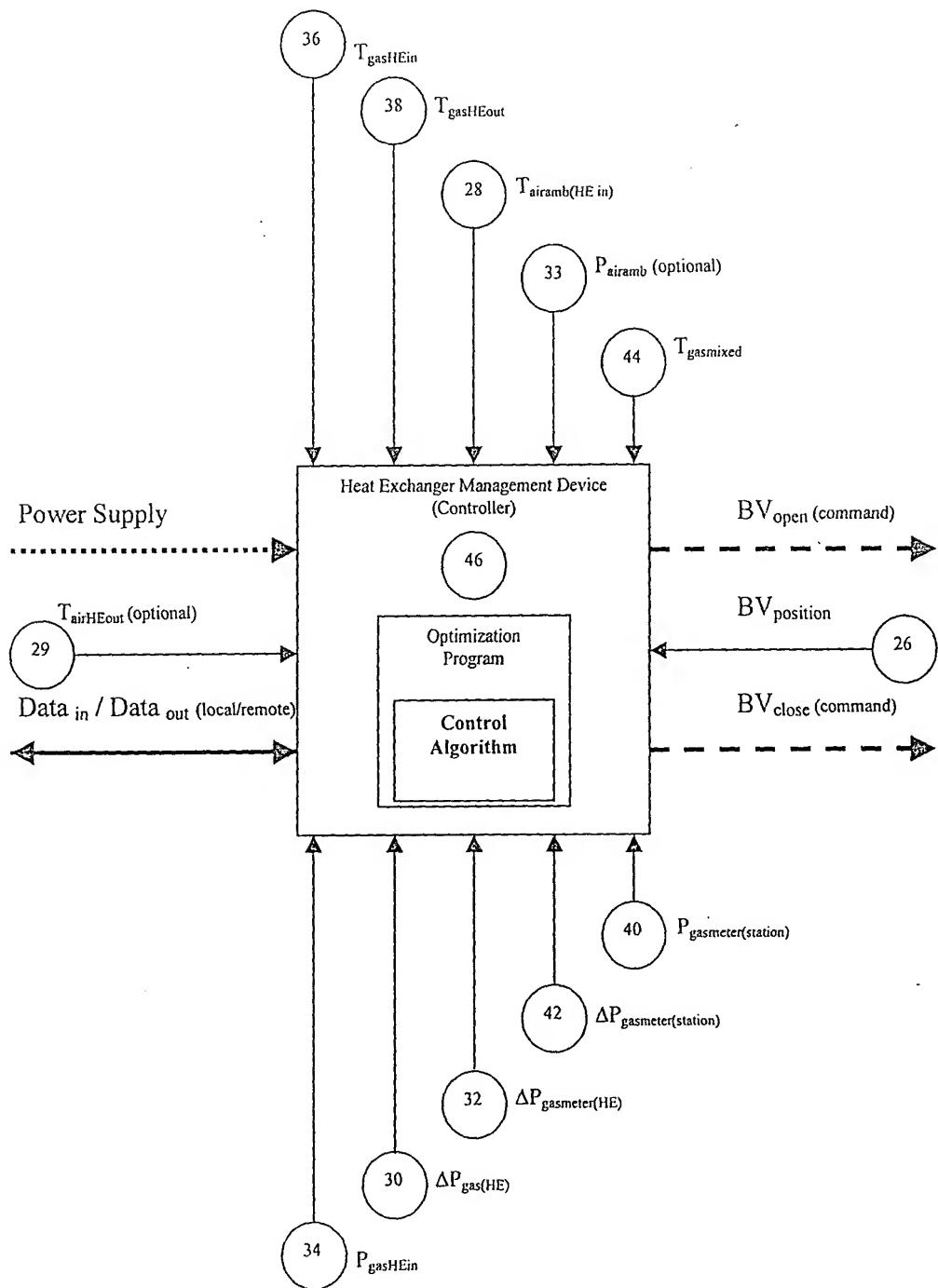


Fig. 13 Heat Exchanger Management Device Schematic – Embodiment Eleven



## net power savings through gas cooling

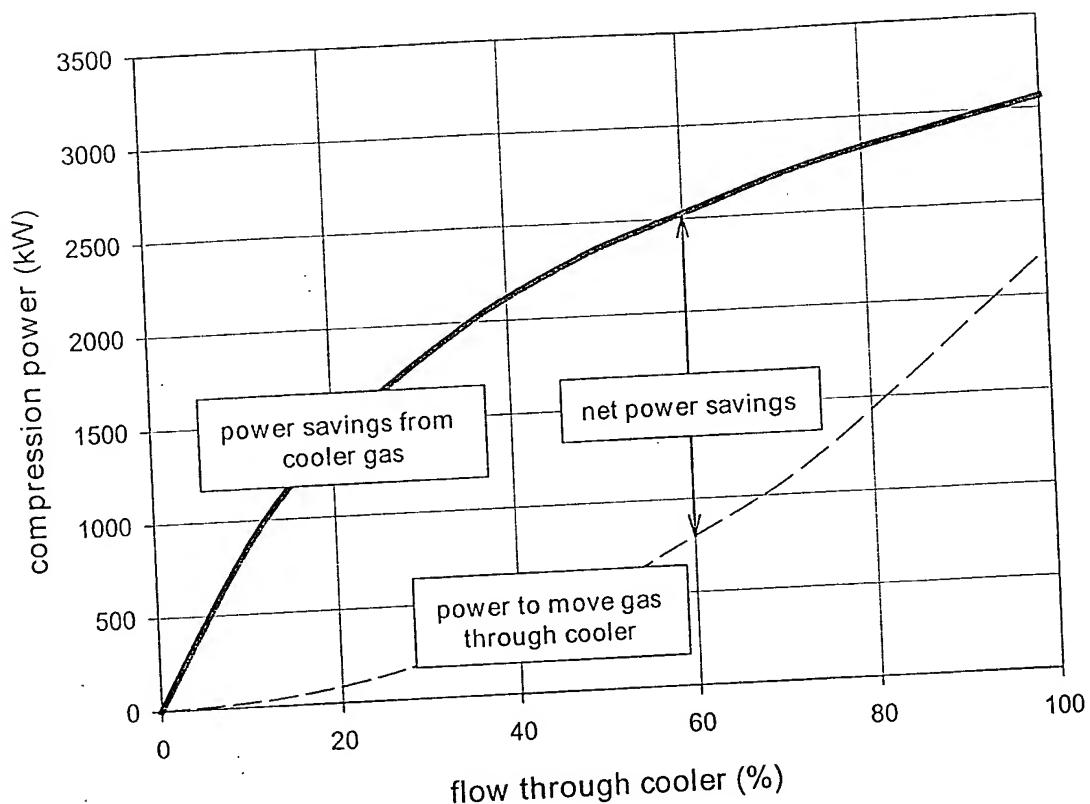


Fig. 14 Net Power Savings through Gas Cooling

optimum amount of cooling =  
maximum net power savings

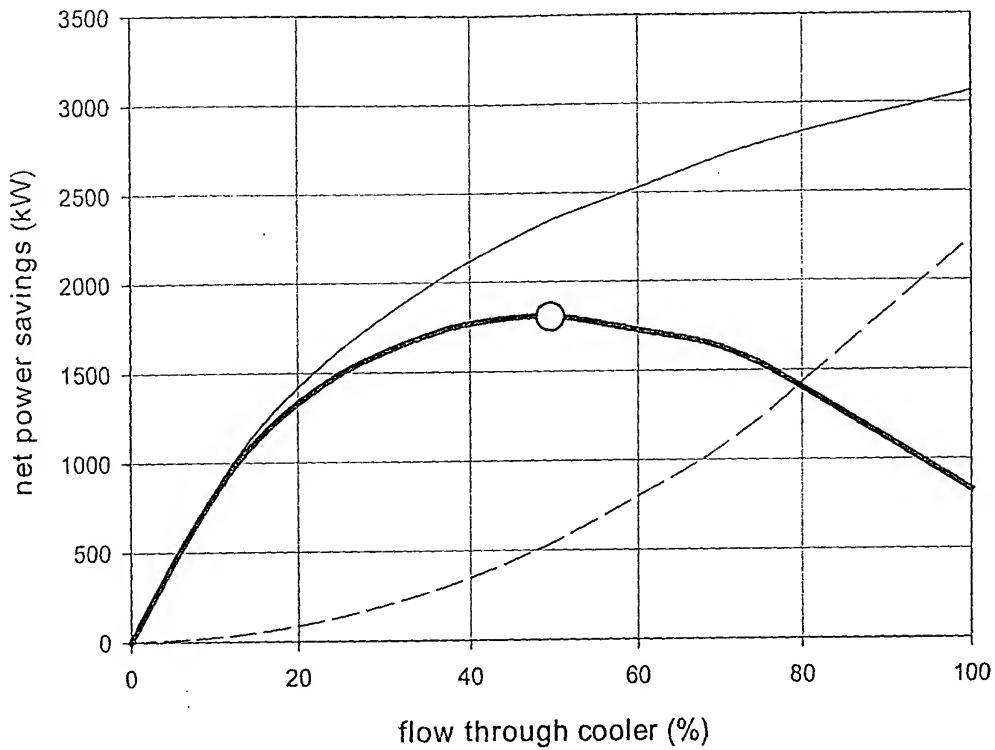


Fig. 15 Optimum Amount of Cooling

benefits of cooling  
at various ambient temperatures

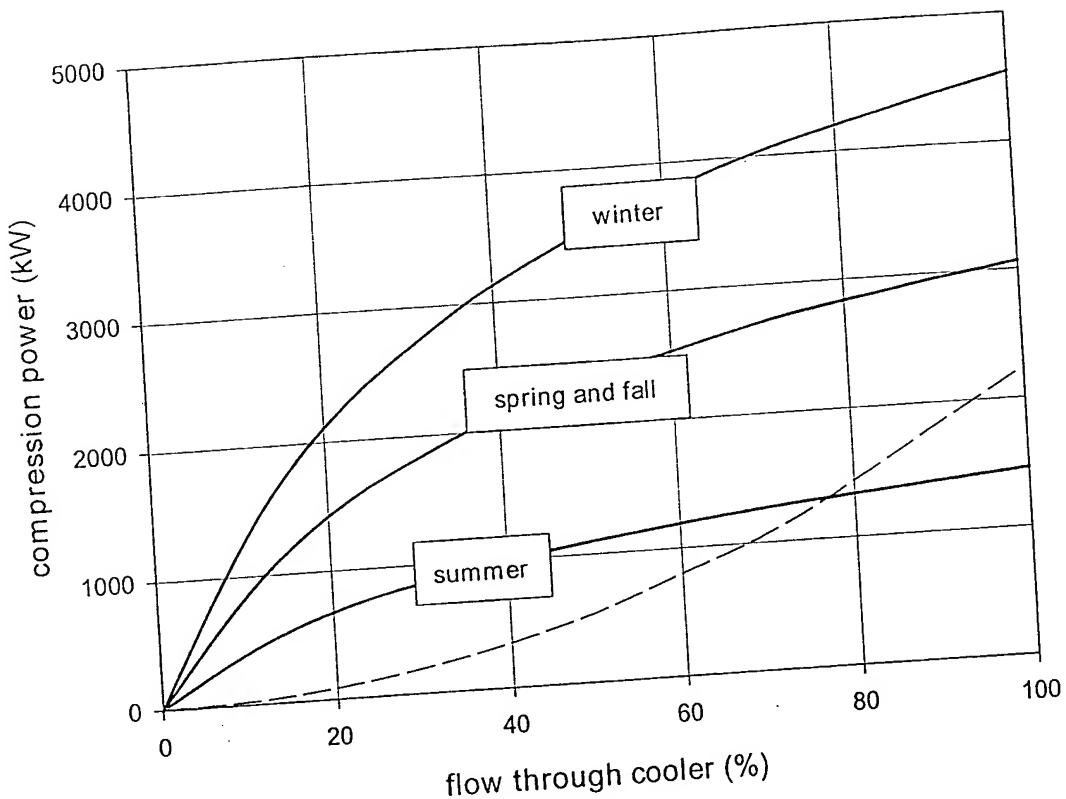


Fig. 16 Benefits of Cooling at Various Ambient Temperatures

basis for algorithm  
( $\Delta T$  = unit discharge temp - ambient temp)

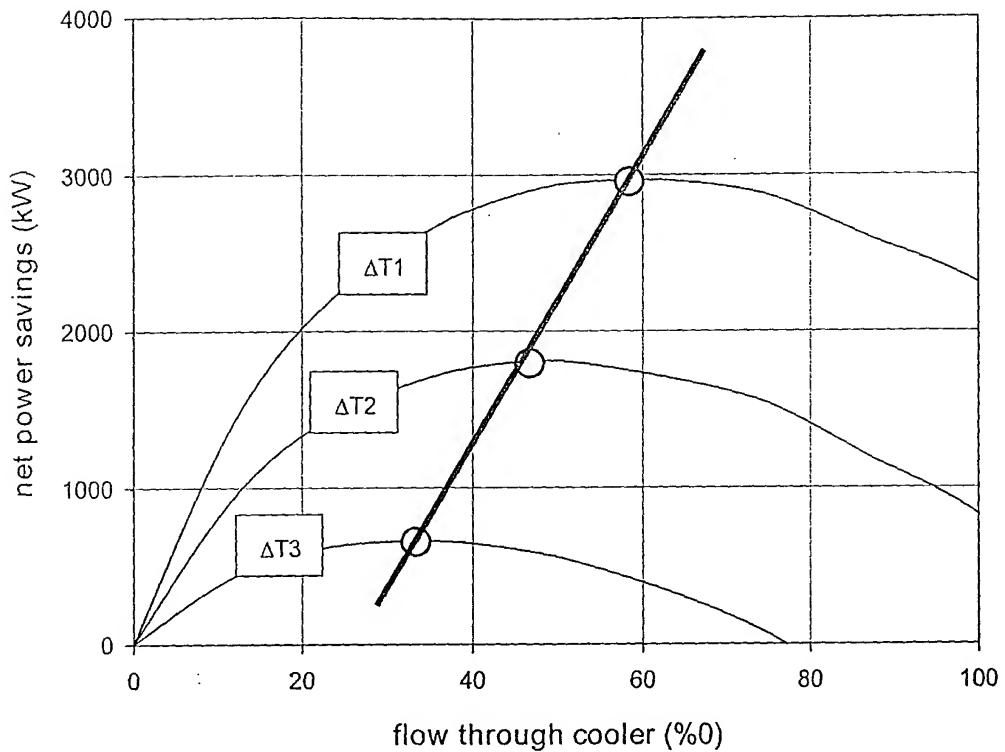


Fig. 17 Basis for the Control Algorithm